

# 2002 Annual Compliance Report

## Lowman, Idaho, Disposal Site

### Compliance Summary

The site, inspected on August 21, 2002, was in excellent condition. Areas to the north and west of the disposal cell, regraded and seeded in fall 1998, have successfully revegetated. Trees and shrubs sprouting in the riprap of the cell cover can be allowed to grow without increased risk to the public health, safety, or the environment. DOE will continue to control noxious weeds at the site. Inspectors identified no cause for maintenance or a follow-up or contingency inspection.

### Compliance Requirements

Requirements for the long-term surveillance and maintenance of the Lowman, Idaho, Uranium Mill Tailings Radiation Control Act (UMTRCA) Title I disposal site are specified in the *Long-Term Surveillance Plan for the Lowman, Idaho, Disposal Site* (DOE/AL/62350-36, Rev. 1, U.S. Department of Energy [DOE], Albuquerque Operations Office, April 1994) and in procedures established by the DOE Grand Junction Office to comply with requirements of Title 10 *Code of Federal Regulations* Part 40.27 (10 CFR 40.27). These requirements are listed in Table 10-1.

Table 10-1. License Requirements for the Lowman, Idaho, Disposal Site

Requirement	Long-Term Surveillance Plan	This Report
Annual Inspection and Report	Section 6.0	Section 1.0
Follow-up or Contingency Inspections	Section 7.0	Section 2.0
Routine Maintenance and Repairs	Section 8.0	Section 3.0
Ground Water Monitoring	Section 5.3	Section 4.0
Corrective Action	Section 9.0	Section 5.0

### Compliance Review

#### 1.0 Annual Inspection and Report

The site, northeast of Lowman, Idaho, was inspected on August 21, 2002. Results of the inspection are described below. Features and the photograph locations (PLs) mentioned in this report are shown on Figure 10-1. Numbers in the left margin of this report refer to items summarized in the Executive Summary table.

## 1.1 Specific Site Surveillance Features

**Access Road, Entrance Gate, and Signs**—The site is at the end of a hard-packed gravel road north of Idaho State Highway 21. The 500-foot long access road between the highway and the DOE property is along a perpetual easement granted by the U.S. Forest Service. The road was in excellent condition, although grass was growing along the centerline. A locked gate spans the road about 150 feet from the state highway and was in excellent condition.

One entrance sign and 18 perimeter signs delineate the site boundary. The entrance sign is just inside the site boundary near monitor well 0580. Although the sign had two bullet holes, it was still legible and does not need replacing. The 18 perimeter signs are on posts along the site boundary. New bullet holes were identified in perimeter signs P3 and P15. These signs were legible and do not need to be replaced. Other than bullet holes in the entrance sign, P3, and P15, all signs were in excellent condition.

**Site Markers and Monuments**—There are two site markers, four boundary monuments, and three combination survey/boundary monuments. All were in excellent condition.

**Monitor Wells**—The monitoring network at the site consists of six monitor wells and one spring. Four of the wells are on site and two are just outside the site boundary. The spring, location 0561, is also outside the site boundary near the southwest corner of the site. The wells have cap-and-pin locking systems and were in excellent condition. A seventh well (LOW-01-029), located southeast of the cell, is unneeded but was secure.

## 1.2 Transects

To ensure a thorough and efficient inspection, the site was divided into three areas referred to as transects: (1) the top and side slope of the disposal cell; (2) the area between the disposal cell and the site boundary; and (3) the outlying area.

**Top and Side Slope of the Disposal Cell**—Basalt riprap armors the top and west-facing side slope of the disposal cell, which conforms to the east to west sloping topography of the site. An apron of larger riprap surrounds the disposal cell on all sides. The riprap was in excellent condition, and no evidence of subsidence, cracking, or differential settlement on the disposal cell was observed.

10A Encroachment of vegetation continues on the top and side slope of the disposal cell. Many of the larger trees and shrubs were removed in July 2001. In 2002, the Grand Junction Office Long-Term Performance Project conducted column leach studies to evaluate the effect of these plants on the long-term performance of the disposal cell. The hard rock material contained in the Lowman disposal cell is generally insoluble and resistant to leaching. Water infiltrating the cell through spaces around root systems will not result in release of contaminated leachate to the environment. The natural plant community succession can be allowed to proceed without increased risk to the public health, safety, or the environment. However, DOE will cut larger trees as needed to prevent damage to the riprap armor by blowdown.

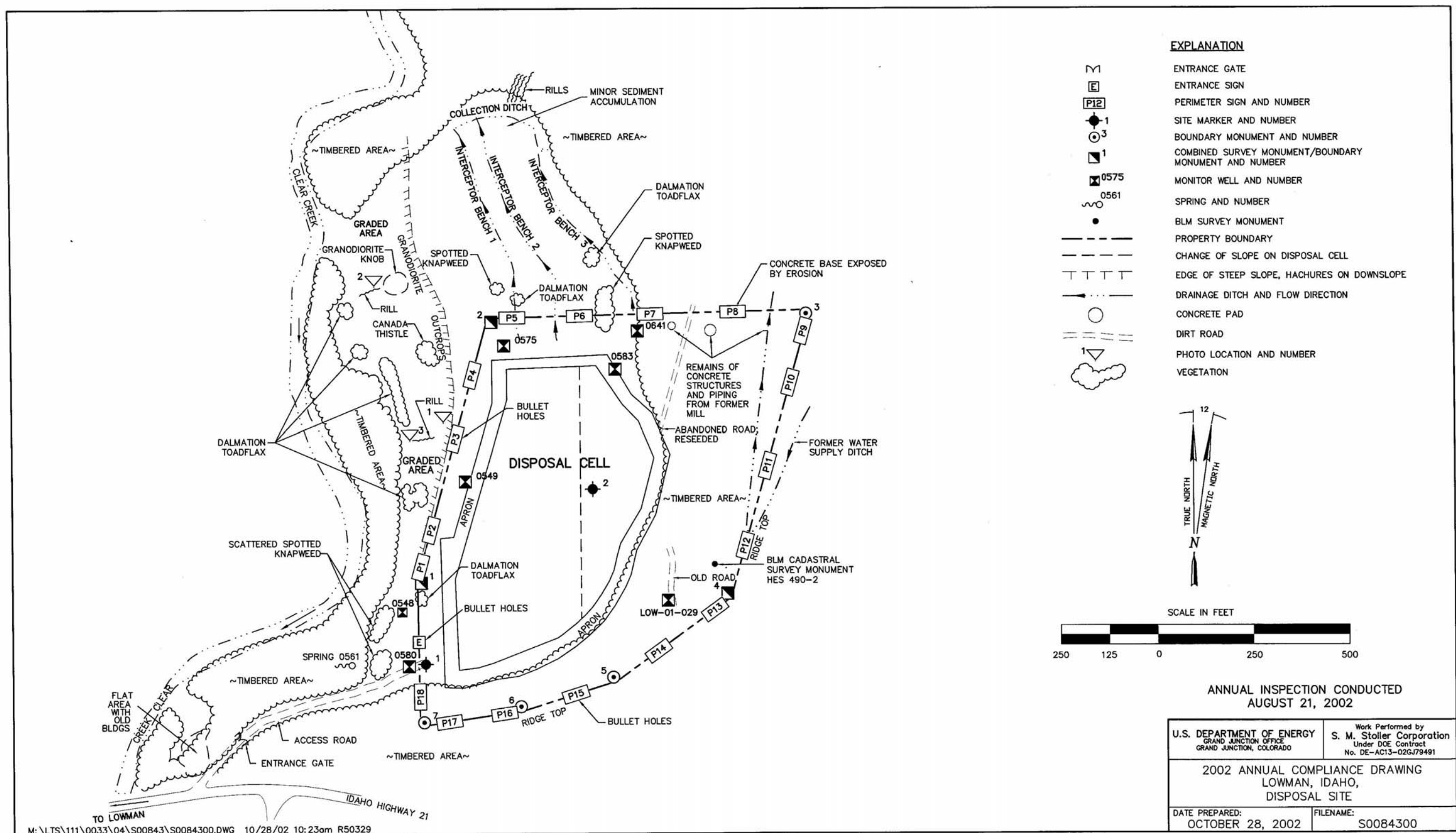


Figure 10-1. 2002 Annual Compliance Drawing for the Lowman, Idaho, Disposal Site

**Area Between the Disposal Cell and the Site Boundary**—The steep slopes east and south of the site were stable with well-established ponderosa pine and grasses. The rills on the slopes immediately north and west of the cell were stable; DOE will continue to monitor this area for erosion.

**Outlying Area**—An area within 0.25 mile around the site was visually inspected for evidence of construction, development, logging, or change in land use that might affect site integrity. No changes were noted to the area across Clear Creek to the west, where several summer cabins are located. The area east and south of the site is U.S. Forest Service land and was unchanged.

The interceptor benches, collection ditch, and vegetation were effectively controlling soil erosion in the revegetated area. Repairs made to the interceptor benches and collection ditch from the early 1999 washouts remain effective. Overall, the benches and collection ditch were in good condition. In 2001, inspectors noted that a small area of sediment accumulation was present at the north end of Interceptor Bench 2. Inspectors visited this area again in 2002 and found it to be in acceptable condition. This area will continue to be monitored to ensure that sediment buildup does not cause storm runoff to concentrate and erode the interceptor bench. Small rills that carry runoff from the timbered area into the east end of the collection ditch will be monitored because they could deepen and cut a new channel adjacent to the present collection ditch.

The revegetation effort on the slopes north and west of the disposal cell has been successful. Although some small areas are dominated by cheatgrass, an annual weedy species, most of the revegetated area supports healthy stands of desirable perennial species and volunteer plants of ponderosa pine.

A silt fence was erected in 1998 along the west side of the erosion control project (PL-1). Vegetation has successfully established upgradient of the fence. Two erosion rills near the silt fence, one west of the granodiorite knob (PL-2) and one west of perimeter sign P3 (PL-3). These rills do not affect the integrity of the disposal cell.

**10B** Infestations of dalmatian toadflax, spotted knapweed, and Canada thistle were found west and north of the disposal cell. These state-listed noxious weeds will be controlled through application of herbicide.

Concrete structures and piping from the former mill remain in an area northeast of the disposal cell. Inspectors evaluated this area to determine if a personal injury hazard exists or if the piping was part of a well system that may need to be closed. The inspectors determined that the small amount of debris present does not constitute a significant personal injury hazard. No standing water was observed in the piping and no wells exist.

## **2.0 Follow-Up or Contingency Inspections**

No follow-up or contingency inspections were required in 2002.

### 3.0 Routine Maintenance and Repairs

No maintenance was required in 2002.

### 4.0 Ground Water Monitoring

DOE monitors ground water at this site to verify the initial performance of the disposal cell. Sampling locations are provided in Table 10–2.

*Table 10–2. Ground Water Sampling Locations at the Lowman, Idaho, Disposal Site*

Monitor Well Location		Spring Location	
0583	Upgradient, north of cell	0561	Downgradient, southwest of cell
0641	Upgradient, north of cell		
0548	Downgradient, west of cell		
0549	Downgradient, west of cell		
0575	Downgradient, northwest of cell		
0580	Downgradient, southwest of cell		

DOE samples the wells and spring annually. Well 0549 was dry at the time of the 2002 sampling, and no sample was collected.

Initial performance of the disposal cell is verified by monitoring for antimony, whose mean concentration in tailings pore fluids was slightly above the maximum detected background ground water concentration of 0.007 milligrams per liter (mg/L).

August 2002 sampling results show that antimony concentrations in all downgradient wells were either below the laboratory detection limit or within the range of upgradient (background) concentrations. The maximum downgradient concentration (0.002 mg/L) was detected in well 0548, and the maximum upgradient concentration (0.004 mg/L) was detected in well 0583. Results indicate that antimony is not leaching from the disposal cell.

The Lowman site is unique among UMTRCA sites in that the mill process was mechanical instead of chemical. Consequently, there were no process-related chemicals to contaminate the underlying soils and ground water. Radioactive sands encapsulated in the disposal cell are highly resistant to weathering and chemical alteration and have very low leachability characteristics. There is no credible scenario by which these sands could contribute antimony to ground water at the site.

- 10C Results of sampling and analysis for antimony provide evidence that antimony will not leach from the disposal cell in detectable concentrations. Therefore, there is no technical basis to continue monitoring. A revision to the Long-Term Surveillance Plan that will delete the monitoring requirement is in preparation.

## 5.0 Corrective Action

Corrective action is action taken to correct out-of-compliance or hazardous conditions that create a potential health and safety problem or that may affect the integrity of the disposal cell or compliance with 40 CFR 192.

No corrective action was required in 2002.

## 6.0 Photographs

*Table 10–3. Photographs Taken at the Lowman, Idaho, Disposal Site*

<b>Photograph Location Number</b>	<b>Azimuth</b>	<b>Description</b>
PL-1	305	Silt fence along the west side of the erosion control project.
PL-2	270	Erosion rill below silt fence near granodiorite knob.
PL-3	60	Erosion rill below silt fence near perimeter sign P3.



*PL-1. Silt fence along the west side of the erosion control project.*



*PL-2. Erosion rill below silt fence near granodiorite knob.*



*PL-3. Erosion rill below silt fence near perimeter sign P3.*

End of current section